

SPEXone on the NASA PACE mission: Aerosol and cloud products and scientific applications.

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On February 8, 2024 the NASA Plankton, Aerosol, Cloud & ocean Ecosystem (PACE) mission has been launched with onboard the SPEXone Multi-Angle Polarimeter (MAP). SPEXone is hyperspectral MAP designed to deliver unprecedented information on aerosol properties, such as size, shape, absorption (Single Scattering Albedo - SSA), and amount (Aerosol Optical Depth -AOD, number concentration), chemical composition, and proxies for Cloud Condensation Nuclei (CCN). In addition, SPEXone provides information on liquid cloud droplet size. In this presentation, we will present the global distribution of aerosol and cloud properties from the first two years of the SPEXone mission, and discuss the characteristic patterns in aerosol properties observed for Anthropogenic aerosol, different kinds of biomass-burning, Dust, Sea salt, and marine biogenic aerosol. Next, we will present examples of the use of SPEXone data for the improvement of aerosol-climate models through Perturbed Parameter Ensembles (PPEs), Ensemble-Kalman Filter Data assimilation, and evaluation of AEROCOM models.

Preferred mode of presentation: Oral (online)